

## SCOPE OF CLAIM

1. A heat-meltable fluoropolymer composite composition comprising a heat-meltable fluoropolymer fine powder and a layered-compound organically modified with 5 tetraphenyl phosphonium ions.
2. The heat-meltable fluoropolymer composite composition according to claim 1., wherein the heat-meltable fluoropolymer fine powder is an agglomerate powder having average particle size of not more than 10  $\mu\text{m}$  which comprises agglomerated colloidal fine particles of heat-meltable fluoropolymer.
- 10 3. The heat-meltable fluoropolymer composite composition according to claim 1 or 2, wherein said heat-meltable fluoropolymer is a polymer or copolymer of a monomer selected from the group consisting of tetrafluoroethylene, hexafluoropropylene, perfluoro(alkylvinylether), vinylidenefluoride and vinylfluoride, and a copolymer of any of these monomers and ethylene or propylene.
- 15 4. The heat-meltable fluoropolymer composite composition according to any one of claims 1 through 3, wherein at least part of said heat-meltable fluoropolymer is heat-meltable fluoropolymer containing a functional group.
5. The heat-meltable fluoropolymer composite composition according to any one of claims 1 through 4, wherein said layered-compound is at least one selected from the 20 group consisting of clay mineral, mica and graphite which is not more than 10  $\mu\text{m}$  in average particle size.
6. The heat-meltable fluoropolymer composite composition according to claim 5., wherein said layered-compound is clay mineral or mica.
7. The heat-meltable fluoropolymer composite composition according to claim 6., 25 whose nitrogen gas transmission rate is not more than 0.60 times as high as that of

heat-meltable fluoropolymer containing no layered-compound.

8. The heat-meltable fluoropolymer composite composition according to claim 6 or 7, whose storage modulus at 25°C is not less than 1.5 times as high as that of heat-meltable fluoropolymer containing no layered-compound.

5 9. A process for manufacturing a heat-meltable fluoropolymer composite composition which comprises a process (I) in which a heat-meltable fluoropolymer composite composition is obtained by mixing a heat-meltable fluoropolymer fine powder and a layered-compound and a process (II) in which such heat-meltable fluoropolymer composite composition thus obtained is melt-mixed by exerting shear 10 stress by means of a melt-mixing extruder.

10. The process for manufacturing a heat-meltable fluoropolymer composite composition according to claim 9, wherein said heat-meltable fluoropolymer fine powder is an agglomerate powder having average particle size of not more than 10 µm which comprises agglomerated colloidal fine particles of heat-meltable 15 fluoropolymer.

11. The process for manufacturing a heat-meltable fluoropolymer composite composition according to claim 9 or 10, wherein the mixing of a heat-meltable fluoropolymer fine powder and a layered-compound is carried out by use of a high-speed rotary mixer whose blades or cutter knives have a circumferential velocity 20 of not less than 35 m/sec.

12. A heat-meltable fluoropolymer composite composition which is obtained by a process (I) in which a heat-meltable fluoropolymer composite composition is obtained by mixing a heat-meltable fluoropolymer fine powder and a layered-compound and a process (II) in which such heat-meltable fluoropolymer composite composition thus 25 obtained is melt-mixed by exerting shear stress by means of a melt-mixing extruder.

13. The heat-meltable fluoropolymer composite composition according to claim 12.,  
wherein said layered-compound is organically modified with onium ions.

14. The heat-meltable fluoropolymer composite composition according to claim 12.,  
wherein said layered-compound is at least one selected from the group consisting of  
5 clay mineral, mica and graphite which is not more than 10  $\mu\text{m}$  in average particle size.

15. The heat-meltable fluoropolymer composite composition according to any one of  
claims 12 through 14, whose nitrogen gas transmission rate is not more than 0.60  
times as high as that of heat-meltable fluoropolymer containing no layered-compound.

16. The heat-meltable fluoropolymer composite composition according to any one of  
10 claims 12 through 15, whose storage modulus at 25°C is not less than 1.5 times as  
high as that of heat-meltable fluoropolymer containing no layered-compound.

17. The heat-meltable fluoropolymer composite composition according to any one of  
claims 12 through 16, whose specific thermal conductivity is not less than 2 times as  
high as that of heat-meltable fluoropolymer containing no layered-compound.